Indiana Department of Environmental Management
Office of Water Quality
Wetlands Section

Publication Date:
May 17, 2010

Closing Date:
June 6, 2010

PUBLIC NOTICE

IDEM ID Number:
2010-110-48-BCB-A

Corps of Engineers ID Number:
LRL-2009-1355-sjm

To all interested parties: This letter shall serve as a formal notice of the receipt of an application for **Section 401 Water Quality Certification** by the Indiana Department of Environmental Management (IDEM). The purpose of the notice is to inform the public of active applications submitted for water quality certification under Section 401 of the Clean Water Act (33 U.S.C. § 1341) and to solicit comments and information on any impacts to water quality related to the proposed project. IDEM will evaluate whether the project complies with Indiana's water quality standards as set forth at 327 IAC 2.

1. Applicant:
Mr. Michael Spyers
City Engineer
City of Anderson
120 East 8th Street
Anderson, IN 46016

2. Agent:
Mr. Eric Ellingson
Earth Source, Inc.
14921 Hand Road
Fort Wayne, IN 46818

3. Project location: E ½ of Section 6, Township 19 North, Range 8 East, Anderson North USGS Quad, Madison County. From I-69, travel north on SR 9 for approximately 5 miles to Northcrest Addition.

4. Affected waterbody: Shady Run (Upper White 8-Digit Hydrologic Unit Code, 05120201)

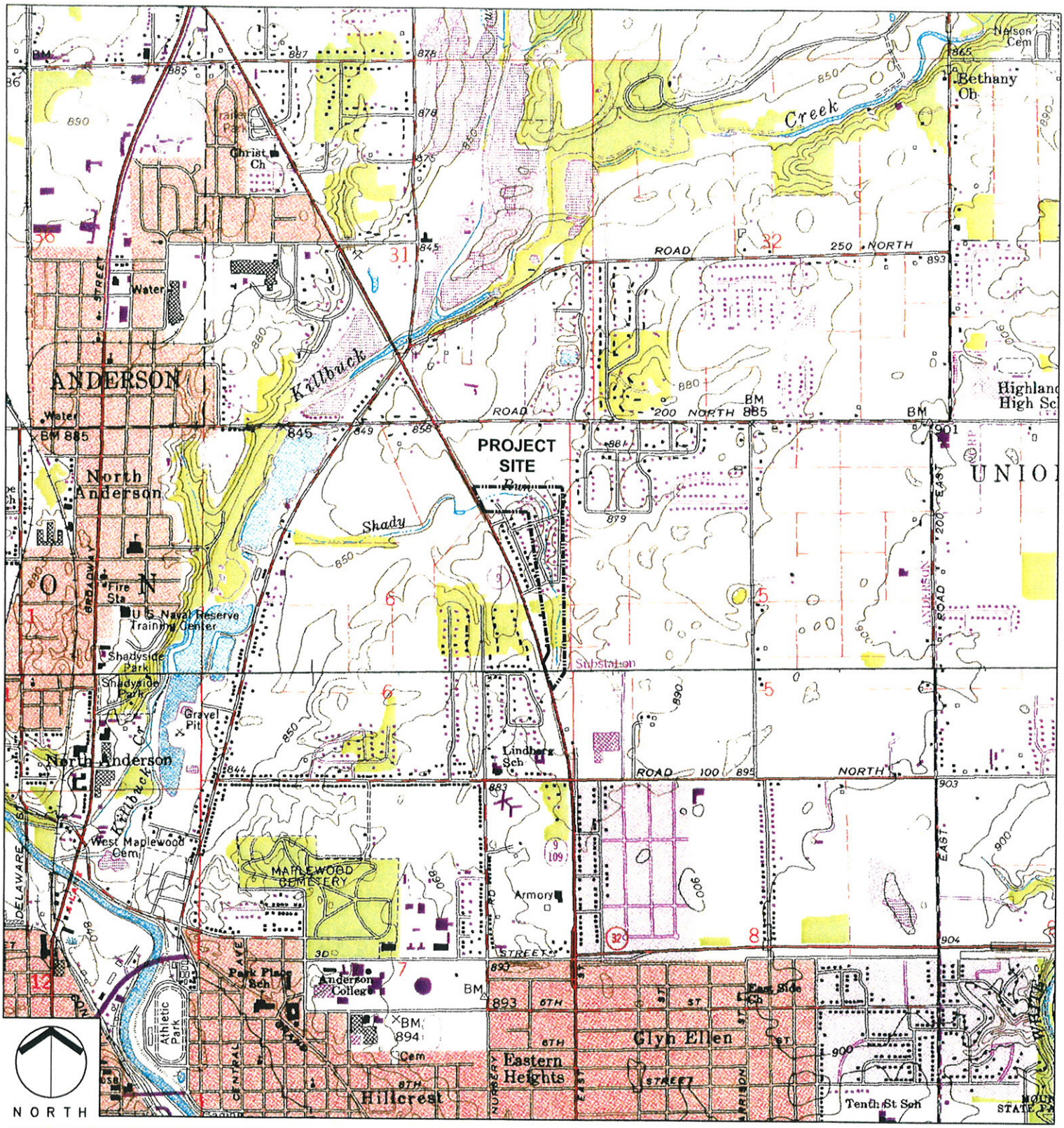
5. Project Description: The applicant is applying for an After-the-Fact (ATF) Section 401 Water Quality Certification for bank stabilization and stream relocation within Shady Run. Specifically, in 2008, the applicant backfilled 754 linear feet (lf) of Shady Run to relocate a reach the channel, and reconstructed 560 lf of channel resulting in a net loss of 194 lf. In 2007, 9 cubic yards (cys) of riprap was placed below the Ordinary High Water Mark (OHWM) for bank stabilization for 162 lf. In 2005, 40 cys of riprap was placed below the OHWM for bank stabilization for 737 lf. To mitigate for 194' of stream loss and 737 lf of bank stabilization (mitigation not required for 162 lf of stabilization in 2007), the applicant proposes in-stream enhancement within the 560 lf of relocated channel and 468 lf of stream enhancement and riparian buffer upstream. Specifically, 125 trees and shrubs will be planted in a 15' to 50' corridor on both sides of the stream for 468 lf except as identified in the plan. Low growing herbaceous species will be planted throughout the corridor as well. For in-stream enhancement, vortex weirs will be installed across the channel at 12 locations to maintain stream gradient/structural stability and effect cascades/riffles for habitat and aeration. For additional plans and information, please visit the IDEM Public Notice website at http://www.in.gov/idem/5474.htm

Comment period: Any person or entity who wishes to submit comments or information relevant to the aforementioned project may do so by the closing date noted above. Only comments or information related to water quality or potential impacts of the project on water quality can be considered by IDEM in the water quality certification review process.

Public Hearing: Any person may submit a written request that a public hearing be held to consider issues related to water quality in connection with the project detailed in this notice. The request for a hearing should be submitted within the comment period to be considered timely. The request should also state the reason for the public hearing as specifically as possible to assist IDEM in determining whether a public hearing is warranted.

Questions? Additional information may be obtained from Mr. Brad Baldwin, Project Manager, at 317-234-5647. Please address all correspondence to the project manager and reference the IDEM project identification number listed on this notice. Indicate if you wish to receive a copy of IDEM's final decision. Written comments and inquiries may be forwarded to -

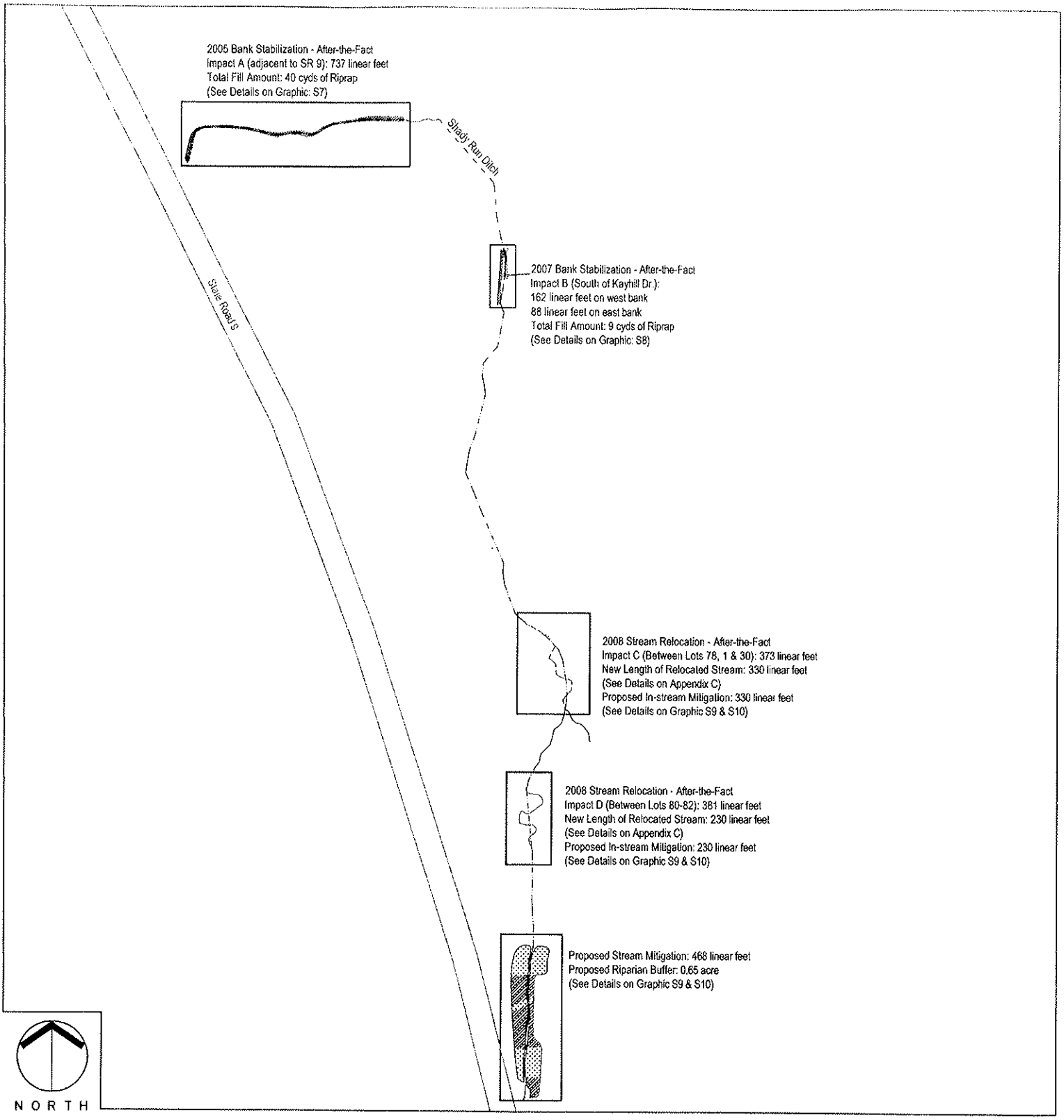
Indiana Department of Environmental Management
100 North Senate Avenue
MC65-42 WQS IGCN 1255
Indianapolis, Indiana 46204-2251
FAX: 317/232-8406



Project Name: SHADY RUN	PROJECT LOCATION MAP
Agent:	0 2,000 FT 4,000 FT Scale 1" = 2,000 FT
Earth·Source Inc 14921 Hand Road, Fort Wayne, IN 46818 (260) 489-8511 Fax (260) 489-8607	Applicant: City of Anderson 120 East 8th Street Anderson, IN 46016

State: INDIANA		County: MADISON
Township Name: ANDERSON		
Township: T19N	Range: R8E	Section: 6
Quadrangle: ANDERSON NORTH (IN)		
Latitude/Longitude (NAD 27): 40° 07' 49.39" N, 85° 39' 15.83" W		
Date: 3-2-2010		Attachment: S2

ESI Project: 0911074



Project Name:
SHADY RUN

Agent:

Earth·Source Inc
14921 Hand Road, Fort Wayne, IN 46818
(260) 489-8511 Fax (260) 489-8607

OVERALL SITE PLAN

0 400 FT 800 FT

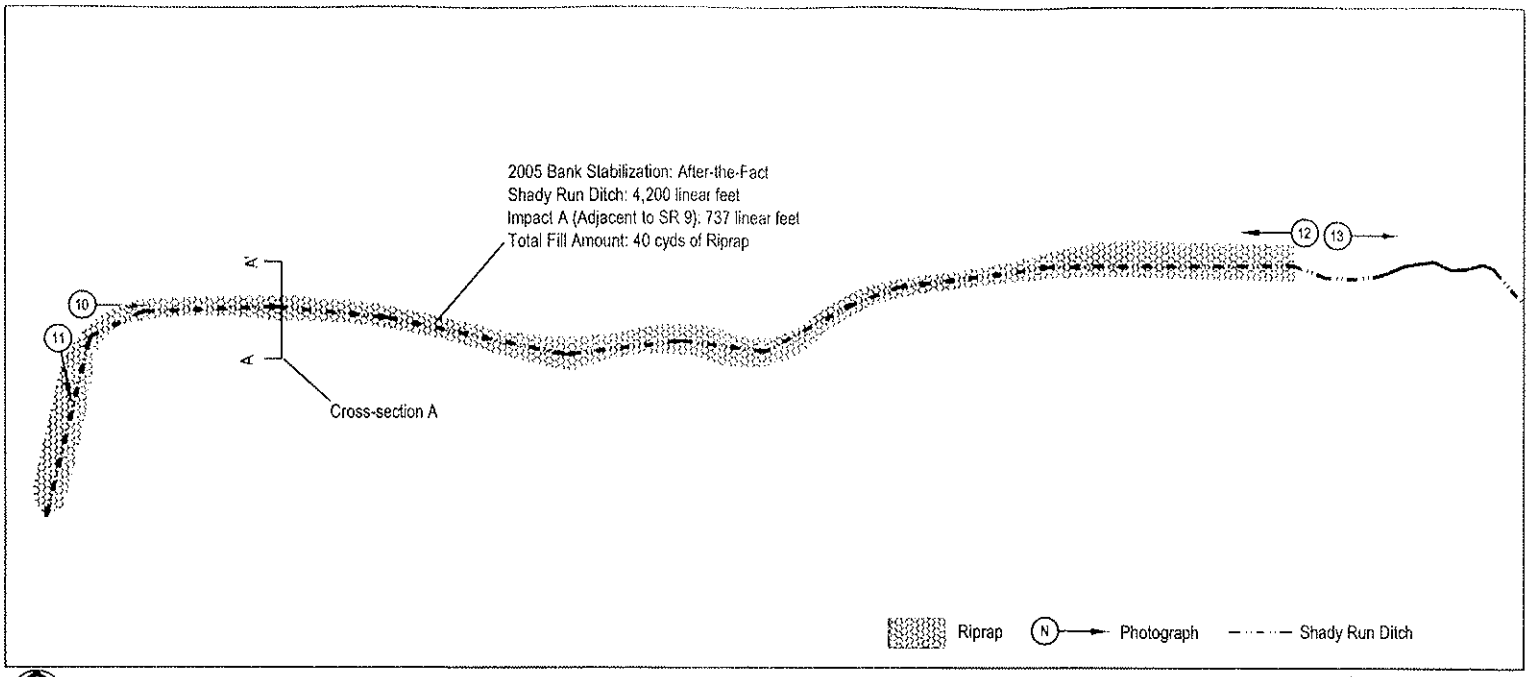
Scale 1" = 400 FT

Applicant:

City of Anderson
120 East 8th Street
Anderson, IN 46016

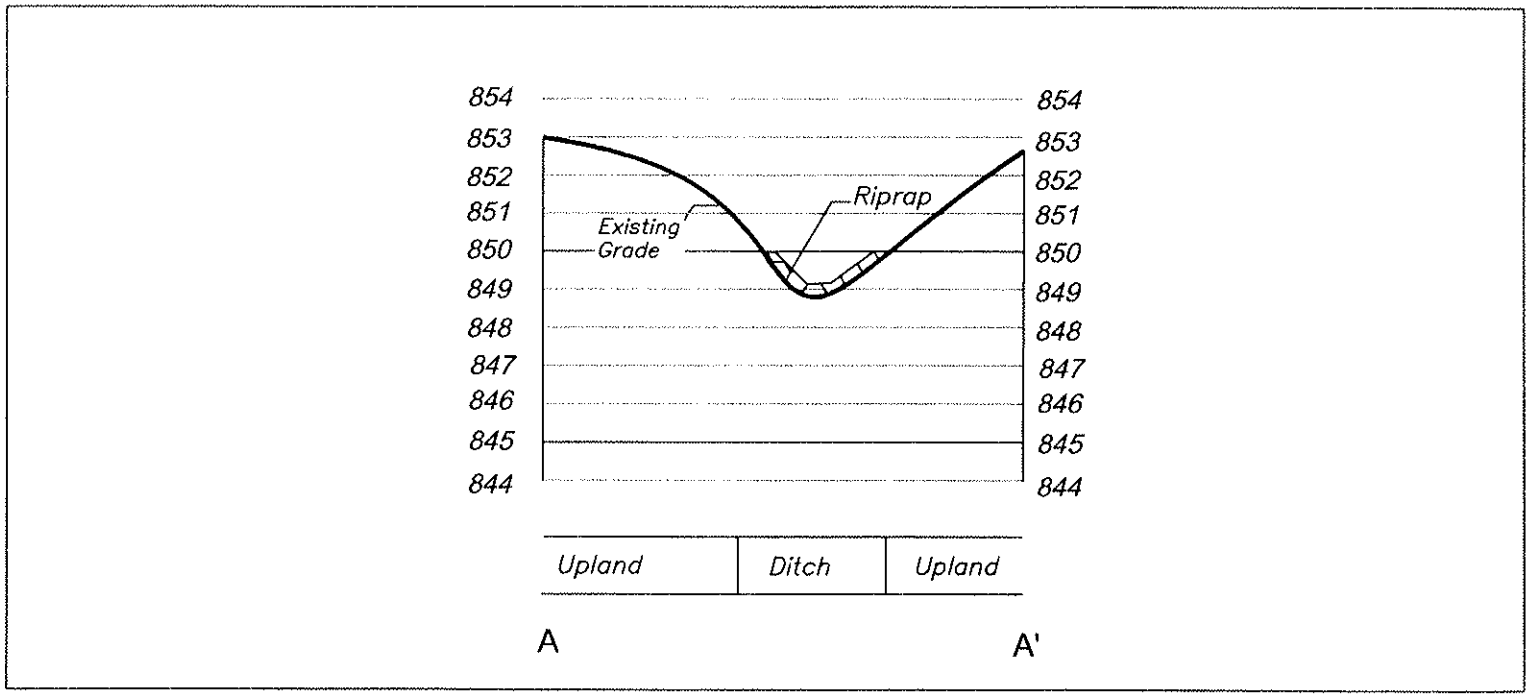
State:	County:
INDIANA	MADISON
Township Name:	
ANDERSON	
Township:	Range:	Section:
T19N	R8E	6
Quadrangle:	
ANDERSON NORTH (IN)	
Latitude/Longitude (NAD 27):	
40° 07' 49.39" N, 85° 39' 15.83" W	
Date:	Attachment:
3-2-2010	S6

ESI Project: 0911074



NORTH

Scale 1" = 100 FT



SECTION

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

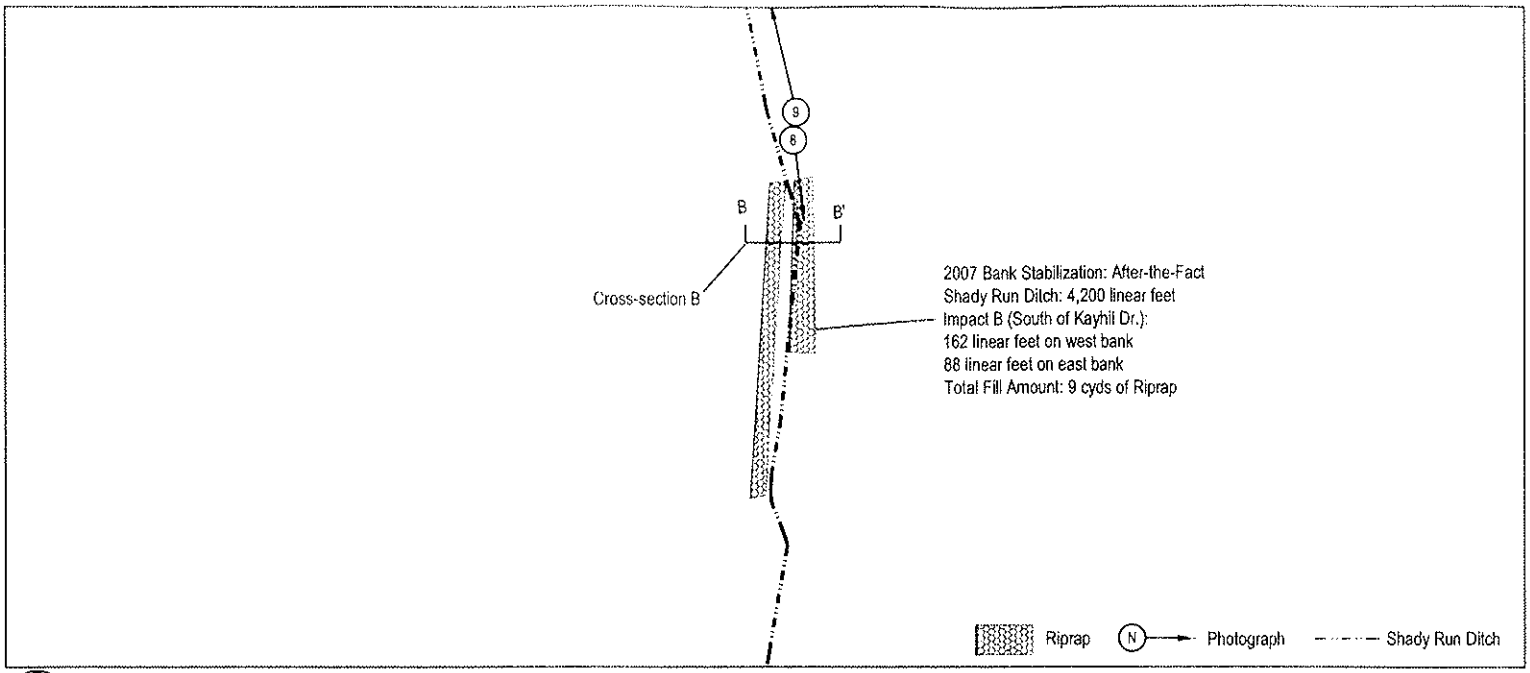
Project Name: SHADY RUN	**IMPACT A: PLAN VIEW & CROSS-SECTION**
Agent:	Applicant:

Earth·Source Inc
14921 Hand Road, Fort Wayne, IN 46818
(260) 489-8511 Fax (260) 489-8607

City of Anderson
120 East 8th Street
Anderson, IN 46016

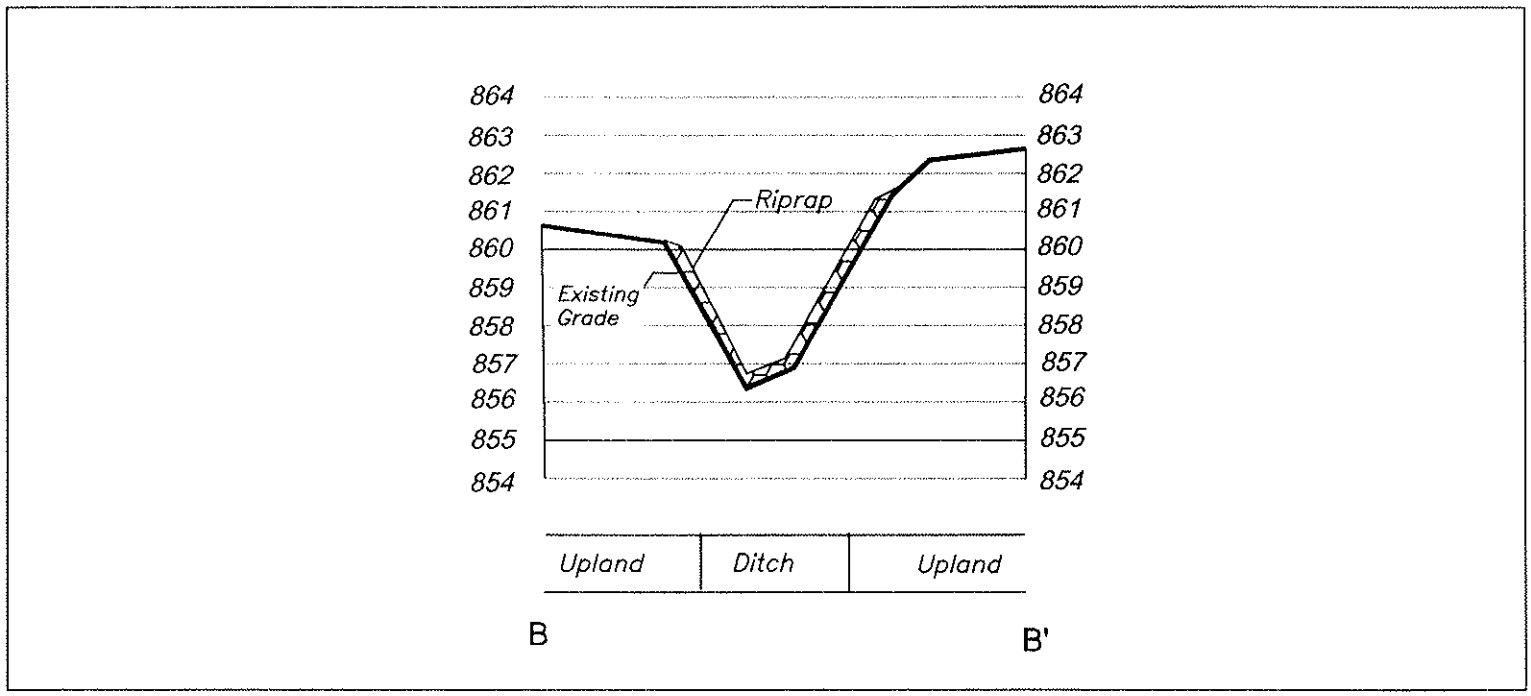
State: INDIANA		County: MADISON
Township Name: ANDERSON		
Township: T19N	Range: R8E	Section: 6
Quadrangle: ANDERSON NORTH (IN)		
Latitude/Longitude (NAD 27): 40° 07' 49.39" N, 85° 39' 15.83" W		
Date: 3-2-2010		Attachment: S7

ESI Project: 0911074



NORTH

Scale 1" = 100 FT



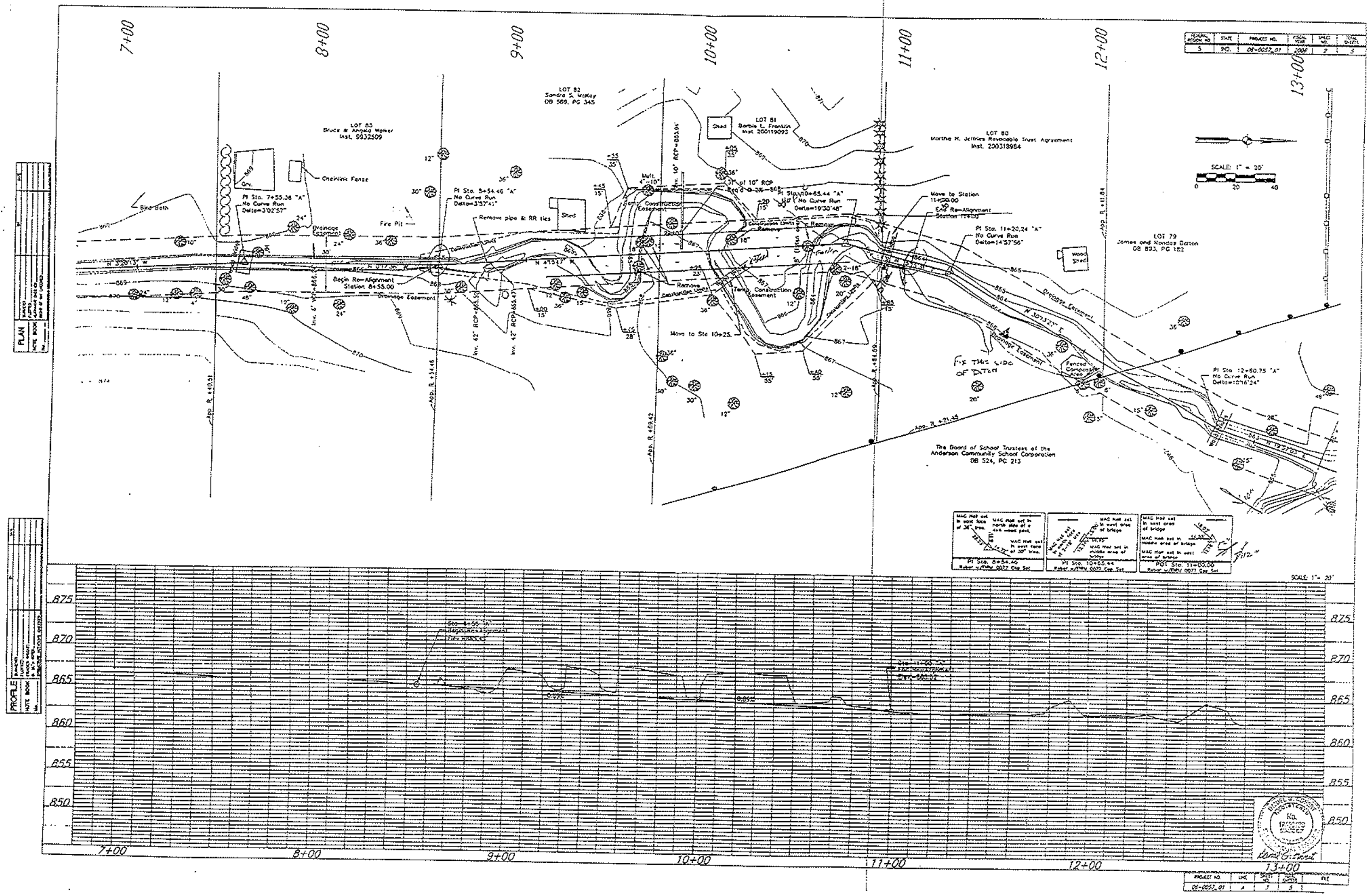
SECTION

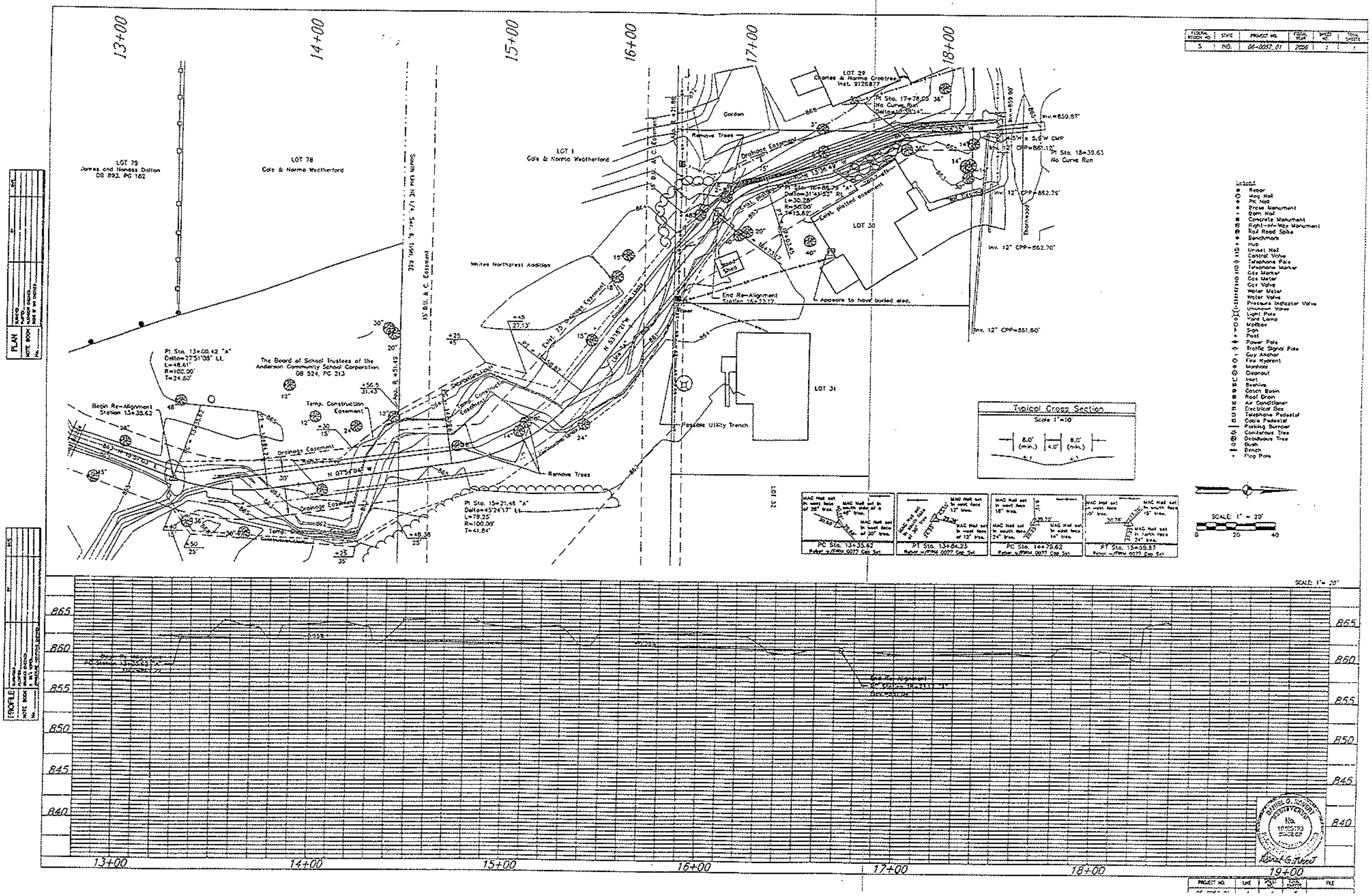
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

Project Name: SHADY RUN	**IMPACT B: PLAN VIEW & CROSS-SECTION**
Agent: Earth·Source Inc 14921 Hand Road, Fort Wayne, IN 46818 (260) 489-8511 Fax (260) 489-8607	Applicant: City of Anderson 120 East 8th Street Anderson, IN 46016

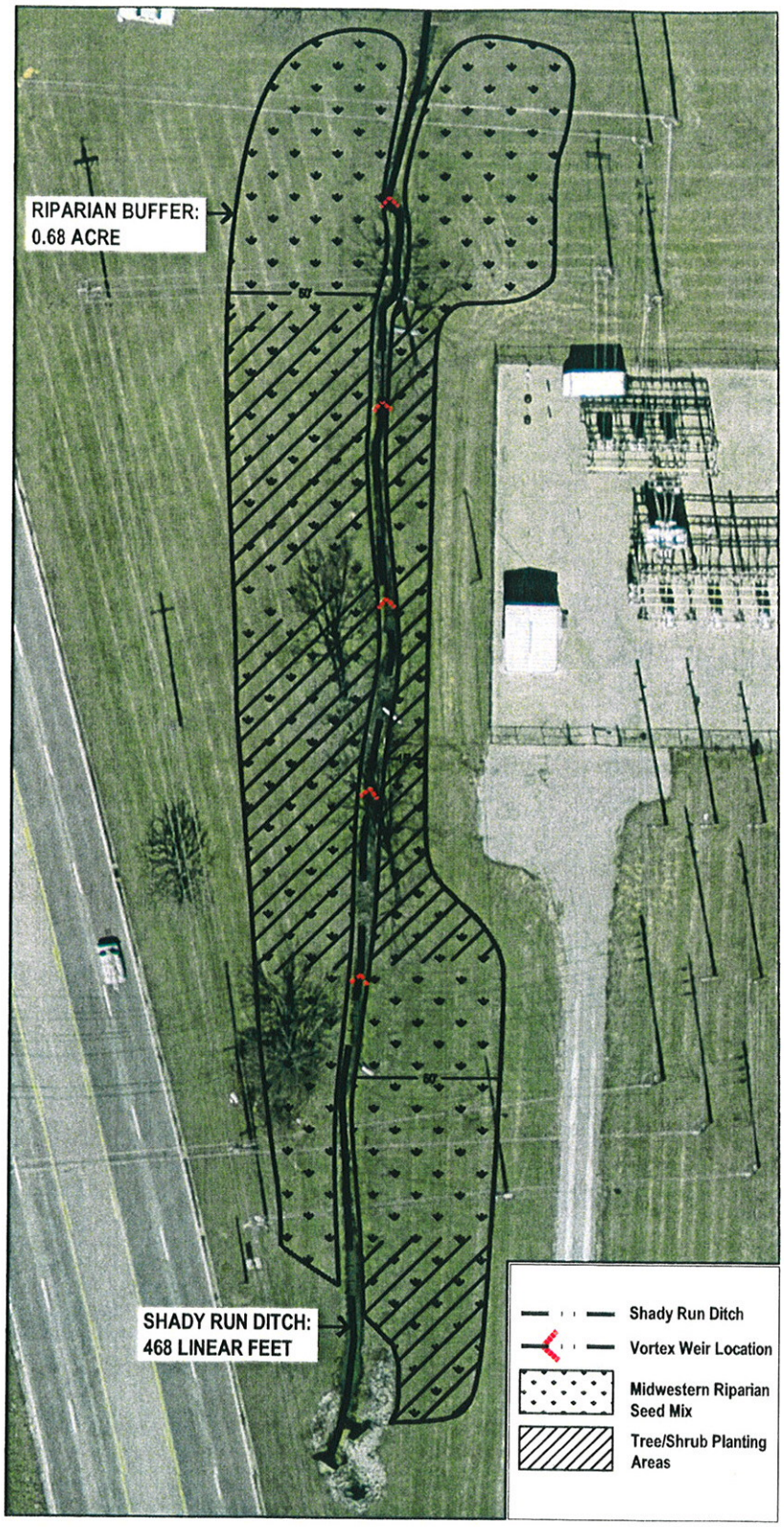
State: INDIANA		County: MADISON
Township Name: ANDERSON		
Township: T19N	Range: R8E	Section: 6
Quadrangle: ANDERSON NORTH (IN)		
Latitude/Longitude (NAD 27): 40° 07' 49.39" N, 85° 39' 15.83" W		
Date: 3-2-2010		Attachment: S8

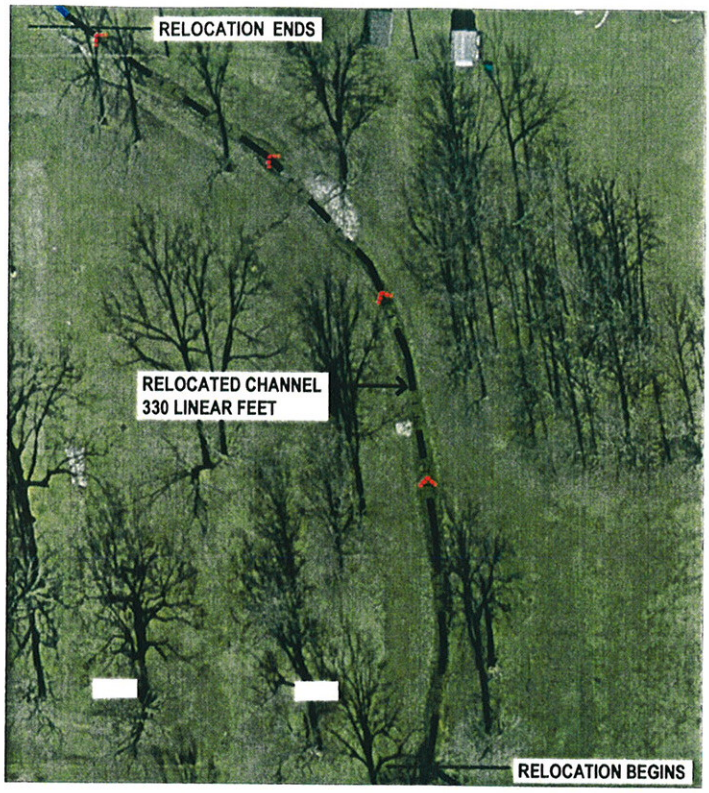
ESI Project: 0911074


PLAN
PROFILE
7+00
8+00
9+00
10+00
11+00
12+00
13+00
LOT 83
Bruce & Angela Walker
Inst. 9932509
LOT 82
Sandra S. McKay
DB 569, PG 345
LOT 81
Barbie L. Franklin
Inst. 200119093
LOT 80
Martha M. Jeffries Revocable Trust Agreement
Inst. 200318984
LOT 79
James and Nondas Dalton
DB 893, PG 152
The Board of School Trustees of the
Anderson Community School Corporation
DB 524, PG 213
SCALE: 1" = 20'
Chainlink Fence
Bird Bath
Fire Pit
Shed
Wood Shed
Drainage Easement
Temp. Construction Easement
Construction Limits
Remove pipe & RR ties
Begin Re-Alignment
Station 8+55.00
End Re-Alignment
Station 11+00
Move to Station 11+00.00
Move to Sta 10+25
PI Sta. 7+55.38 "A"
No Curve Run
Delta=3°02'57"
PI Sta. 8+54.46 "A"
No Curve Run
Delta=3°57'41"
PI Sta. 10+65.44 "A"
No Curve Run
Delta=19°30'48"
PI Sta. 11+20.24 "A"
No Curve Run
Delta=14°57'56"
PI Sta. 12+80.75 "A"
No Curve Run
Delta=10°16'24"
Fenced Compost Area
Fix this side of Ditch
PI Sta. 8+54.46
PI Sta. 10+65.44
POT Sta. 11+00.00
SCALE: 1" = 20'
875
870
865
860
855
850
06-0057_01



13+00
14+00
15+00
16+00
17+00
18+00
19+00
LOT 79
Jones and Nandas Dalton
DB 893, PG 182
LOT 78
Cole & Norma Weatherford
LOT 1
Cole & Norma Weatherford
LOT 29
Charles & Norma Crabtree
LOT 30
LOT 31
LOT 32
Whites Northwest Addition
The Board of School Trustees of the Anderson Community School Corporation
DB 524, PG 213
South Line NE 1/4, Sec. 6, T19N, R8E
15' D.U. & C. Easement
Begin Re-Alignment
Station 13+35.62
End Re-Alignment
Station 16+23.17
Pt Sta. 13+60.42 "A"
Delta=27°51'03" Lt.
L=48.61'
R=100.00'
T=24.80'
Pt Sta. 15+21.46 "A"
Delta=45°24'17" Lt.
L=79.25'
R=100.00'
T=41.84'
Pt Sta. 17+78.05 38"
No Curve Run
Pt Sta. 18+30.63
No Curve Run
Drainage Easement
Temp. Construction Easement
Remove Trees
Possible Utility Trench
Appears to have buried elec.
Garden
Wood Shed
Inv. 12" CPP=852.75'
Inv. 12" CPP=852.70'
Inv. 12" CPP=851.60'
Typical Cross Section
Scale 1"=10'
8.0' (min.)
4.0'
8.0' (min.)
4:1
PC Sta. 13+35.62
PT Sta. 13+84.23
PC Sta. 14+79.62
PT Sta. 15+39.57
SCALE: 1" = 20'
0
20
40
Legend
Rebar
Mag Nail
PK Nail
Brass Monument
Barn Nail
Concrete Monument
Right-of-Way Monument
Rail Road Spike
Benchmark
Hub
Unisel Nail
Control Valve
Telephone Pole
Telephone Marker
Gas Marker
Gas Meter
Gas Valve
Water Meter
Water Valve
Pressure Indicator Valve
Unknown Valve
Light Pole
Yard Lamp
Mailbox
Sign
Post
Power Pole
Traffic Signal Pole
Guy Anchor
Fire Hydrant
Manhole
Cleanout
Inlet
Beehive
Catch Basin
Roof Drain
Air Conditioner
Electrical Box
Telephone Pedestal
Cable Pedestal
Parking Bumper
Coniferous Tree
Deciduous Tree
Bush
Bench
Flag Pole
PLAN
PROFILE
NOTE BOOK
SCALE: 1" = 20'
865
860
855
850
845
840
End Re-Alignment





Project Name:
SHADY RUN

Agent:

Earth·Source Inc
14921 Hand Road, Fort Wayne, IN 46818
(260) 489-8511 Fax (260) 489-8607

MITIGATION PLAN VIEW

0 60 FT 160 FT

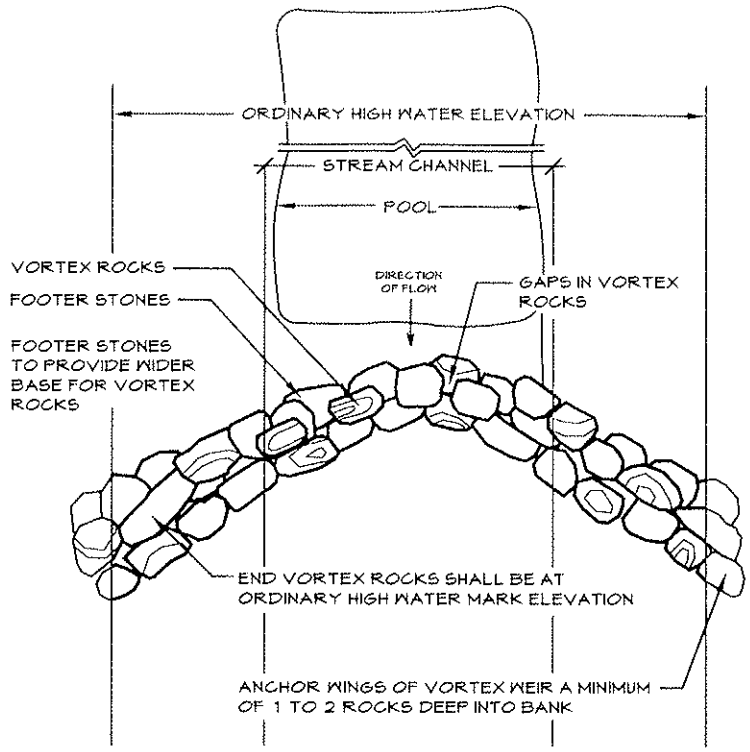
Scale 1" = 60 FT

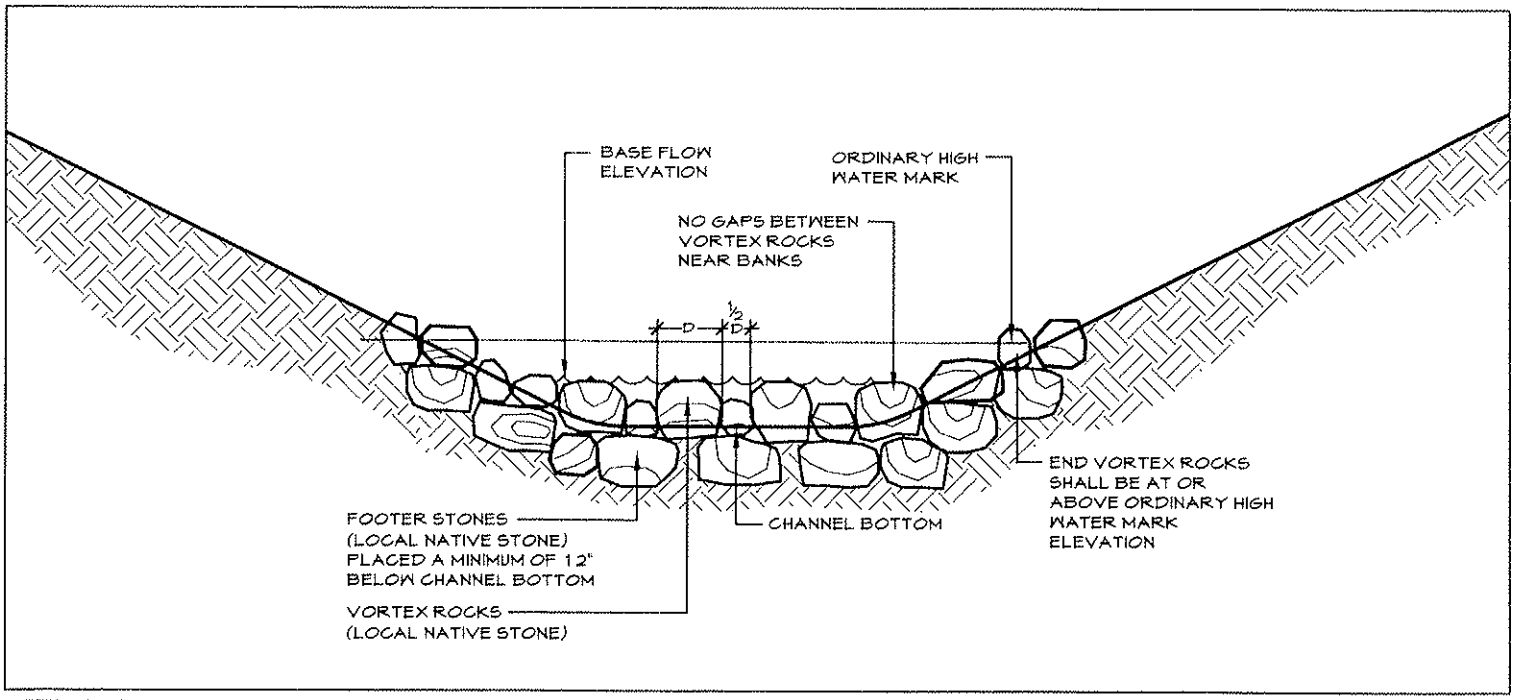
Applicant:

City of Anderson
120 East 8th Street
Anderson, IN 46016

State:	County:
INDIANA	MADISON
Township Name:	
ANDERSON	
Township:	Range:	Section:
T19N	R8E	6
Quadrangle:	
ANDERSON NORTH (IN)	
Latitude/Longitude (NAD 27):	
40° 07' 49.39" N, 85° 39' 15.83" W	
Date:	Attachment:
3-2-2009	S9

ESI Project: 0911074





Project Name:
SHADY RUN

Agent:

Earth·Source Inc
14921 Hand Road, Fort Wayne, IN 46818
(260) 489-8511 Fax (260) 489-8607

TYPICAL VORTEX WEIR
PLAN VIEW & CROSS-SECTION
(NOT TO SCALE)

Applicant:

City of Anderson
120 East 8th Street
Anderson, IN 46016

State:	County:
INDIANA	MADISON
Township Name:	
ANDERSON	
Township:	Range:	Section:
T19N	R8E	6
Quadrangle:	
ANDERSON NORTH (IN)	
Latitude/Longitude (NAD 27):	
40° 07' 49.39" N, 85° 39' 15.83" W	
Date:	Attachment:
3-2-2010	S10

EXECUTIVE SUMMARY

The Shady Run Ditch site is located in Section 6 of Anderson Township, Madison County, Indiana. Shady Run is a shallow urban drain located in a residential subdivision, characterized by intermittent flow and mown lawn along the bank. The City of Anderson previously impacted 737 linear feet of Shady Run Ditch (adjacent to State Road 9) in 2005 and 162 linear feet of Shady Run Ditch (south of Kayhill Drive) in 2007 through hard armor bank stabilization and relocated 754 linear feet of Shady Run Ditch (south of Thornwood Drive) in 2008. Per discussion with Indiana Department of Environmental Management and Army Corps of Engineer, the impacts are individual, separate and complete projects given the time duration of when the activities occurred on-site. The City of Anderson is applying for three separate permit: 1) After-the-Fact Section 401/404 Regional General Permit for the 2007 impact to 162 linear feet of Shady Run for bank stabilization; 2) an After-the-Fact Section 401 Individual and Section 404 Regional General Permit for the 2005 impact of 737 linear feet of Shady Run for bank stabilization; and 3) an After-the-Fact Section 401 Individual and Section 404 Regional General Permit for the 2008 impact of 754 linear feet of Shady Run by backfilling and constructing 560 linear feet of new channel, resulting in 194 linear feet of stream loss. To mitigate for the 194 linear feet of stream loss from the relocation and the 737 linear feet of stream impact from bank stabilization, the City of Anderson proposes the in-stream enhancement within the 560 linear feet of relocated ditch and 468 linear feet of stream enhancement and riparian buffer upstream along Shady Run Ditch.

I. PROJECT INFORMATION

APPLICANT INFORMATION.

Applicant

Mr. Michael Spyers
City of Anderson
120 East 8th Drive
Anderson, Indiana 46016

voice (765) 648-6118

Agent

Mr. Eric P. Ellingson
Earth Source Incorporated
14921 Hand Road
Fort Wayne, Indiana 46818

voice (260) 489-8511
facsimile (260) 489-8607

PROJECT SUMMARY.

The Shady Run Ditch site is located in Section 6 of Anderson Township (T19N, R8E), Madison County, Indiana (40° 07' 49.39"N, 85° 39' 15.83"W [NAD27]). Shady Run is a shallow (approximately. 4'x2') urban drain located in a residential subdivision, characterized by intermittent flow and mown lawn along the bank. The City of Anderson (City) previously impacted 737 linear feet of Shady Run Ditch (adjacent to State Road 9) in 2005 and 162 linear feet of Shady Run Ditch (south of Kayhill Drive) in 2007 through hard armor bank stabilization and relocated 754 linear feet of Shady Run Ditch (south of Thornwood Drive) in 2008. Per conversation with Indiana Department of Environmental Management (IDEM) and Army Corps of Engineers (ACOE), the impacts are individual, separate and complete projects given the time duration of when the activities occurred on-site.

No Mitigation for this Impact

- The City is applying for an After-the-Fact (ATF) Section 401/404 Regional General Permit (RGP) for the impact of 162 linear feet to Shady Run Ditch (south of Kayhill Drive) by the placement to 9 cubic yards of riprap below the ordinary high water mark of the ditch for bank stabilization that occurred in 2007. The impact is under the threshold of 300 linear feet of impact and therefore does not require mitigation to compensate for the loss.

- The City is applying for an ATF Individual Section 401 permit and ATF Section 404 RGP for the impact of 737 linear feet to Shady Run Ditch (adjacent to State Road 9) by the placement of 40 cubic yards of riprap below the ordinary high water mark of the ditch for bank stabilization that occurred in 2005.

mitigation

TABLE OF CONTENTS

APPENDICES

PERMIT GRAPHICS

II. REGULATED AREA 2007 IMPACT SUMMARY FOR ATF 401/404 RGP

BANK STABILIZATION

SECTION I: (reference attachments S6 and S7)

Type of development:	Maintenance
Total length of *waters of the United States.*	4,200 linear feet
Total length of regulated impact:	737 linear feet
Total proposed riprap:	40 cubic yards

Impact A (Adjacent to SR 9): The applicant impacted 737 linear feet (0.05 acre) of Shady Run Ditch by the placement of 40 cubic yards of riprap below the ordinary high water mark of the ditch. The bank stabilization work performed was to address down-cutting, will decrease erosion and stabilize the drain.

III. REGULATED AREA 2005 IMPACT SUMMARY FOR ATF 401 INDIVIDUAL AND 404 RGP

BANK STABILIZATION

SECTION I: (reference attachments S6 and S8)

Type of development:	Maintenance
Total length of *waters of the United States.*	4,200 linear feet
Total length of regulated impact:	162 linear feet
Total proposed riprap:	9 cubic yards

Impact B (South of Kayhill Dr.): The applicant impacted 162 linear feet (0.01 acre; specifically 162 linear feet on the west side; 88 linear feet on the east side) of Shady Run Ditch by the placement of 9 cubic yards of riprap below the ordinary high water mark of the ditch. The bank stabilization work performed was to address down-cutting, will decrease erosion and stabilize the drain.

IV. REGULATED AREA 2008 IMPACT SUMMARY FOR ATF 401 INDIVIDUAL AND 404 RGP

STREAM RELOCATION:

SHADY RUN DITCH: (reference attachments in Appendix C)

Type of development:	Maintenance
Total length of *waters of the United States.*	4,200 linear feet
Total length of regulated impact:	754 linear feet
Total length of relocated stream:	560 linear feet
Total fill material:	196 cubic yards

mitigation

- The City is applying for an ATF Individual Section 401 permit and ATF Section 404 RGP for the stream relocation and backfill of 754 linear feet of Shady Run Ditch (south of Thornwood Drive) that occurred in 2008. The new relocated channel of Shady Run is 560 linear feet, which created a net loss of 194 linear feet of stream.

To mitigate for the 194 linear feet of stream loss from the relocation and the 737 linear feet of stream impact from bank stabilization, the City proposes the in-stream enhancement within the 560 linear feet of relocated ditch and 468 linear feet of stream enhancement and riparian buffer upstream along Shady Run Ditch.

Avoidance, Minimization, and Mitigation Information.

Is there a practicable alternative to the proposed activity?
Impacts to regulated waters have occurred on site to address erosion. According to IDEM and ACOE, the removal of the 737 linear feet of riprap placed below the ordinary high water mark is not a viable restoration plan. Due to the fact that the drain intersects yards within an existing residential subdivision alternative methods of bank stabilization are not appropriate given the City has only a maintenance easement along this portion of the drain and could not insure long-term protection of this area. Therefore the City is applying to the ATF permit for the 737 linear feet of impact. Restoration of the relocated channel is not a viable option of the City. Therefore, the City is applying for the ATF permit for the 754 linear feet of stream relocation and creation of 560 linear feet of new channel that resulted in the net loss of 194 linear feet of stream.

Have practicable and appropriate steps to minimize impacts to water resources been taken? Impacts to regulated waters have occurred. The bank stabilization work performed was to address down-cutting and erosion of an urban drain. The bank stabilization work decreased erosion and stabilized the drain. Although Shady Run is an intermittent urban drain with little to no habitat or water quality function other than the transport of storm flows, the ATF permit application does provide stream quality improvements by in-stream enhancement structures and riparian buffer as mitigation to enhance Shady Run Ditch.

Describe all compensatory mitigation required for unavoidable impacts.
To mitigate for the 194 linear feet of stream loss from the relocation and the 737 linear feet of hard armor bank stabilization, the City proposes in-stream enhancement within the 560 linear feet of relocated ditch and 468 linear feet of in-stream enhancement and riparian buffer upstream along Shady Run Ditch.

Watershed and Surrounding Land Use. Regionally, the project is located in the USGS 8-digit Upper White Watershed HUC 05120201. The surrounding land is comprised a residential homes with agricultural beyond to the north, south and west; and electrical power substation and school with agricultural fields beyond to east of the site.

Success and Sustainability. Enhancement of in-stream structure will provide riffle/run morphology, increased substrate quality, and habitat matrix for aquatic organisms and macrophyte growth. Vortex weirs will be installed across the drain at 12 locations to maintain stream gradient and effect cascades/riffles for in-stream habitat and aeration of flow. The vortex weirs also provide structural stability to the channel in a similar fashion to boulder/slabs, boulder or hardpans in a natural stream system. The vortex weirs will consist of local native stone constrictions placed within the channel. The in-stream vortex weirs are base flow features and will provide riffle morphology to the Shady Run Ditch, which is lacking in-stream structure.

WORK PLAN

Schedule. Mitigation plan will begin upon approval of this plan and will be consistent with the timeline established by the Section 401/404 documents. The construction activities will proceed as follows:

1. Clear construction access to work site, minimizing all disturbances.
2. Install in-stream structures as specified.
3. Perform tree/shrub planting and seeding.
4. Install survey markers and/or protected signage to clearly identify the boundaries.

Construction Methods. The construction limits at the project site shall be clearly marked before and during construction activities.

Planting Plan. The riparian buffer will include seeding of low growing herbaceous community cover and planting of shrub and tree species along the corridor in the designated areas to avoid planting under overhead power lines. Permanent signage will be posted depicting the riparian buffer boundaries. Location

Seeding Methods. Seeding will occur immediately, and without delay, following the completion and acceptance of the finished rough grades. In the event that inclement weather or unsuitable soil conditions delay seeding (allowing the establishment of undesirable noxious species), a limited program of site-specific herbicide application using Round-up/Rodeo brand herbicide will be requested. The herbicide shall be spot or wick applied only to select, undesirable noxious species to allow the planting schedule to resume according to the restoration plan.

In preparation for seeding, the contractor will prepare the seedbed by discing and/or culti-mulching the basin bottom and side slopes. The seed will be applied following seedbed preparation in late spring or early summer, until June 30th. The methods of seed application may include (in order of preference) drilling with a Rangeland-type grass seed drill; broadcasting by hand or dropped from a dropseeder followed by incorporation by culti-packing; or hydroseeding using a trace amount of fiber mulch in

Impact C (between Lots 78, 1 & 30): The applicant relocated and backfilled 373 linear feet (0.05 acre) of Shady Run Ditch. The new relocated channel in this area is 330 linear feet.

Impact D (between Lots 80-82): The applicant relocated and backfilled 381 linear feet (0.05 acre) of Shady Run Ditch. The new relocated channel in this area is 230 linear feet.

V. MITIGATION PLAN

PROJECT PURPOSE

To mitigate for the 194 linear feet of stream loss from the relocation and the 737 linear feet of stream impact from hard armour bank stabilization, the City proposes in-stream enhancement within the 560 linear feet of new relocated ditch and 468 linear feet of in-stream enhancement and riparian buffer upstream along Shady Run Ditch.

MITIGATION GOALS AND OBJECTIVES

The City proposes in-stream enhancement within the 560 linear feet of relocated channel and 468 linear feet of upstream. The in-stream structures will develop riffle constrictions within ditch and provide riffle/run morphology, increase substrate quality, and habitat matrix for aquatic organisms. Along the 468 linear feet of upstream mitigation, the applicant also proposes a riparian buffer (ranging from 15' to 50') along both sides of the stream. The riparian buffer will include seeding of low growing herbaceous community cover and planting of shrub and tree species along the corridor in the designated areas to avoid planting under overhead power lines.

BASELINE INFORMATION

Project Location. The mitigation site is located along Shady Run Ditch in Section 6 of Anderson Township (T19N; R8E) Madison County, Indiana (40° 07' 49.39"N, 85° 38' 15.83"W [NAD27]). From Indianapolis, take Interstate-69 North to State Road 9. Then take State Road 9 north approximately 5 miles to Northcrest Addition. Project Area is to the right in Northcrest Addition.

Ownership of Project Site. The mitigation site is owned by City of Anderson. The City of Anderson, 120 East 8th Drive, Anderson, Indiana, 46016 will be responsible for all financial and management aspects of the mitigation project.

Historic and Current Land Use. The USGS 7.5-Minute topographic quadrangle for Anderson North, Indiana (1992) and 2005 aerial photograph were reviewed to determine the history of land use prior to site development on the proposed mitigation site. The topographic map depicts the subject property as agricultural field with a forested area north of the proposed mitigation area. 2005 aerial photography shows an electrical power substation to the east of Shady Run Ditch and residential homes north along the forested corridor of Shady Run.

solution. Between July 1 and September 15, seed may be applied in the above manner provided that the site is irrigated by sprinkling to ensure proper germination and establishment. Between September 16 and freeze-up, seed may be applied as in the spring. After freeze-up, seed may only be applied by drilling with a Rangeland-type grass seed drill.

The mitigation area shall be seeded with the seed mixes specified below, available from ***Heartland Restoration Services, Inc.*** Phone: (260) 489-8511.

Seed Mix.

Midwestern Riparian Mix (WS2)

Approximate mix weight/acre 73 LBS, with 46 native seeds/sq.ft.
13.9% Grasses/Sedges/Rushes, 5.4% Forbs, 80.7% Temporary Cover Grasses

This mix is intended for application on areas of forested to non-forested floodplains, ditches and stream banks. This mix contains species that tolerate sun and shade and are adapted to conditions of frequent, short duration flooding. This mix contains a heavy component of temporary cover grasses for rapid soil stabilization.

Scientific Name	Common Name	Indicator status	Habit
Grasses/Sedges/Rushes			
Carex frankii	Frank's Sedge	OBL	PNEGL
Carex muskingumensis	Palm Sedge	OBL	PNGL
Carex normalis	Spreading Oval Sedge	FACW	PNGL
Carex squarrosa	Squarrose Sedge	OBL	PNGL
Carex vulpinoidea	Fox Sedge	OBL	PNEGL
Cinna arundinacea	Common Wood Reed	FACW	PNG
Elymus canadensis	Canada Wild Rye	FAC-	PNG
Elymus riparius	Riverbank Wild Rye	FACW	PNG
Elymus virginicus	Virginia Wild Rye	FACW-	PNG
Glyceria striata	Fowl Manna Grass	OBL	PNEG
Leersia oryzoides	Rice Cut Grass	OBL	PNG
Panicum virgatum	Switch Grass	FAC+	PNG
Scirpus atrovirens	Dark Green Bulrush	OBL	PNEGL
Scirpus pendulus	Drooping Bulrush	OBL	PNEGL
Forbs			
Aster novae-angliae	New England Aster	FACW	PNF
Bidens cernua	Nodding Bur Marigold	OBL	ANF
Eupatorium purpureum	Purple Joe Pye Weed	FAC	PNF
Eupatorium rugosum	White Snakeroot	FACU	PNF
Heliopsis helianthoides	False Sunflower	[UPL]	PNF
Lysimachia ciliata	Fringed Loosestrife	FACW	PNF
Rudbeckia laciniata	Cut-leaf Coneflower	FACW+	PNF
Rudbeckia triloba	Brown-eyed Susan	FAC-	PNF
Silphium perfoliatum	Cup Plant	FACW-	PNF
Verbesina alternifolia	Wingstem	FACW	PNF
Vernonia gigantea	Tall Ironweed	FAC	PNF
Zizia aurea	Golden Alexanders	FAC+	PNF

Temporary Cover Grasses			
Agrostis alba	Redtop	FACW	PIG
Agrostis alba palustris	Creeping Bent Grass	FACW	PNG
Avena sativa	Seed Oats	FACU*	AIG
Lolium multiflorum	Annual Rye Grass	UPL	

Woody Planting Methods. The woody species will be planted in random masses, averaging 10 feet on center, over the buffer areas (Reference Attachment S9). All woody material will be purchased from grower-nurseries located within the Midwest region and of similar latitude (hardiness zone). Bare root or container grown stock is acceptable if planting is completed in the spring (after danger of frost has passed). Should planting occur in the summer, woody plant material shall be container. Planting may not occur after August 30th unless the restoration contractor requests and receives written approval from Earth Source, Inc. The plants shall be kept dormant until planted unless otherwise instructed otherwise by the supplier. All plants will be kept moist and cool and not be subject to freezing, drying or overheating. Should plants arrive more than one (1) week prior to time of planting, the bare root material shall be 'heeled-in' in sand, sawdust or wood chips and watered thoroughly and regularly until time of planting.

Woody Species List:

Scientific Name	Common Name	Indicator status	Habitat
Shrubs			
Cornus racemosa	Gray Dogwood	FAC	NT
Quercus macrocarpa	Bur Oak	FAC-	NT
Quercus rubra	Northern Red Oak	FACU	NT
Viburnum lentago	Nannyberry	FAC+	NT
Viburnum prunifolium	Blackhaw	FACU	NT

Irrigation Plan. No irrigation system is planned. However, should seeding occur during the summer seeding window, the contractor should irrigate the mitigation area as needed to enhance seed germination and establishment. The contractor may remove excess water from the mitigation area, should conditions warrant, in order to provide acceptable working and/or growing conditions.

SITE PROTECTION AND MAINTENANCE

The City is responsible for ensuring the long-term protection of the mitigation site along Shady Run Ditch. Permanent signage will be posted depicting the buffer boundaries. Site maintenance will be performed as identified through the adaptive management process to ensure the success of the mitigation site. Maintenance will begin following completion of the mitigation plan and will continue throughout the monitoring period as needed.

FINANCIAL ASSURANCES

The City is responsible for contracting all mitigation installation, management, and monitoring of the project.

PERFORMANCE STANDARDS

Success Criteria. The permittee shall ensure that the mitigation plan meets all of the following success criteria for at least two (2) consecutive years within a five (5) year period:

- The planted riparian corridor will be 15' to 50' wide and 468 linear feet on both sides of the stream except as identified in the plan.
- 50% of the planted trees and shrubs shall be alive and showing signs of growth at the end of monitoring. The riparian corridor shall be free from *Elaeagnus umbellate* (autumn olive), *Elaeagnus angustifolia* (Russian olive), *Rosa multiflora* (multiflora rose) and *Lonicera maackii, L. morrowii, L. tatarica* (honeysuckle).

MONITORING PLAN

The monitoring plan outlines the proposed methods and rationale for collecting consistent and accurate data from the mitigation area throughout the monitoring period. The monitoring plan establishes a process for gauging if and when the site has met the final success criteria established for the project. The execution of the monitoring plan also provides interim assessments of the mitigation site and identifies the need to implement corrective measures when needed.

To track the progress of mitigation success, an annual monitoring report will be prepared at the end of each growing season and submitted to ACOE and IDEM by December 31 of that year. The report will assess the progress of the mitigation area towards achieving the established success criteria, document all management actions carried out, and recommend further management activities as needed.

Timing. The monitoring period shall begin the growing season following completion of the planting plan. The mitigation site shall be monitored annually, between April 15 and May 1. The purpose of the site visit is to: 1) identify any management requirements for the current growing season; 2) comprehensive vegetative sampling; 3) review of the functional status of the mitigation area.

Annual Reports. Monitoring reports will be submitted to the ACOE and IDEM no later than December 31 of each year. In compliance with Regulatory Guidance Letter (RGL) 08-03, the annual monitoring report submittal will not exceed 10 pages in length. The format for submitting annual monitoring reports as required by RGL 08-03 is provided below:

Project Overview.

1) Corps Permit Number/ IDEM Permit Number
2) Name of party responsible for conducting the monitoring and the date(s) the inspection was conducted.
3) A brief paragraph describing the purpose of the approved project, acreage and type of aquatic resources impacted, and mitigation acreage and type of aquatic resources authorized to compensate for the aquatic impact.
4) Written description of the location, any identifiable landmarks of the compensatory mitigation project including information to locate the site

perimeter(s) and coordinates of the mitigation site (expressed as latitude, longitudes, UTMs, state plan coordinate system, etc.).

5) Dates the compensatory mitigation project commenced and/or was completed.
6) Short statement on whether the performance standards are being met.
7) Dates of any recent corrective or maintenance activities conducted since the previous report submission.
8) Specific recommendations for any additional corrective or remedial actions.

Final Success Criteria. The applicant will monitor the stream stabilization and riparian buffer for a minimum of three (3) years. In order to be released from monitoring, the applicant must demonstrate to IDEM and ACOE, through monitoring reports, that the success criteria specified in Project Specific Conditions have been met for two (2) consecutive years.